



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/463,565	04/21/2001	Tatsuya Hashimoto	MAT-7886US	6486

7590

07/10/2003

Lawrence E Ashery
Ratner & Prestia
Suite 301 One Westlakes Berwyn
PO Box 980
Valley Forge, PA 19482-0980

EXAMINER

WINTER, GENTLE E

ART UNIT

PAPER NUMBER

1746

13

DATE MAILED: 07/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/463,565	Applicant(s) HASHIMOTO ET AL.	
	Examiner Gentle E. Winter	Art Unit 1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-12 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 9-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 6 and 7 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 March 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Response to Arguments

1. With respect to the Nikaido reference applicant states:

Nowhere in the Nikaido Patent is there any teaching or suggestion of the requirement of a layer of an oxide active material as set forth in Applicants' amended claim 1. In fact, Applicants note that the Office Action did not reject claim 8 on the basis of the Nikaido Patent, which is an indication that the Examiner recognized that the Nikaido Patent does not teach or suggest the requirement of a layer of an electrode active material on the oxide layer.

2. Claim 8, before cancellation, was drawn to an electrode plate for a battery, the electrode plate comprising a surface having formed thereon an oxide layer, the oxide layer being formed by applying a boehmite treatment to the electrode plate surface, wherein the electrode plate further comprises a paste formed on the oxide layer, the paste comprising an electrode active material.

Applicant's speculation and inferences as to this examiner's train of thought, do not necessarily comport with reality, this is especially so when a claim is already rejected with one or more solid anticipatory reference(s). Additionally, it is noted that claim 8 recited a "paste formed on the oxide layer", the term "electrode active material" can have a plethora of meanings, *including an aluminum oxide layer*, which is disclosed in the *inter alia* in the abstract of Nikaido, what is not apparently disclosed *is a paste comprising an electrode active material*. This limitation was not incorporated into claim 1. For at least the foregoing, the rejection is maintained.

3. With respect to the Carlson reference, Applicant argued that the pseudo-boehmite layer is not the same as the oxide layer formed by applying a boehmite treatment. Unfortunately, this examiner is constrained by the teaching of the claims and the disclosure of the prior art. Mere

Art Unit: 1746

allegations that the invention is different without pointing to actual structural or physical differences is not especially helpful to the case for patentability. Applicant ideally will positively show the differences between the prior art of record and the present invention. As to the differences between the recited "pseudo-boehmite" and claimed boehmite structure, applicant will note that paper 10 directed applicant to United States Patent No. 6,210,831 which discloses terms which are synonymous with pseudo-boehmite, include boehmite, AlOOH , and hydrated alumina. That patent discloses:

[A] method related to the fabrication of a solid composite cathode by a sol-gel method wherein the sulfur-containing cathode active material, and optionally conductive fillers and binders, are suspended or dispersed in a liquid medium containing a colloidal sol of the non-electroactive particulate material of the present invention, for example, a boehmite. From the sol, during the drying process of the coating, a sol-gel or gel is formed resulting in an interconnected, rigid network, typically having sub-micron pores.

See pages 6 and 7 of paper 10.

4. Applicant argued that Carlson:

[I]s in sharp contrast to the boehmite treatment which Applicant's use which is a chemical reaction, not a coating as used in the Carlson patent.

5. The argument is not persuasive because the structure in both the Carlson invention and present invention are the same. The method is not claimed, the rejection is based on the structure, not the method that was used to achieve the structure.

6. Applicant further took the position:

[The teaching of Carlson] is in sharp contrast to the boehmite treatment, which Applicants use, which is a chemical reaction, not a coating as used in the Carlson patent.

7. Applicant points to page 4 line 1 *et seq.* of the specification to differentiate the instant claim 1 from the Carlson patent. A threshold issue exists whether the claim is to be limited to

Art Unit: 1746

the teaching of the specification, setting that issue aside, since aluminum inherently forms an oxide layer, the disclosure of an oxide layer at page 4, from at least a structural point of view, teaches elements inherently present in the Carlson patent which discloses an aluminum electrode. As such the argument is not persuasive and unfortunately the rejection cannot be withdrawn at this time.

8. With respect to claim 10, applicant did not specifically address the rejection as such it is difficult to form a cogent response. Nonetheless, Carlson discloses a method for producing an electrode plate for a Li secondary battery the method comprising the steps of providing an electrode plate (cathode) forming an oxide layer on the electrode plate by applying a boehmite treatment to the electrode plate (coating with boehmite) applying a paste (sol) comprising an electrode active material (organic electrolyte) to the oxide layer and drying the paste (drying the coating). See e.g. column 25, lines 29-39 and 64-67. As such the claim is properly rejected. Applicant underlined "electrode plate" and "applying a boehmite treatment". It is not clear if the suggestion is that these elements are not present in the cited section or if applicant is simply trying to stress the criticality of these steps. See e.g. column 9, line 26 *et seq.* especially line 30 *et seq.*

9. As far as claims 11 and 12 are concerned, this examiner was unable to find proper support for the new claims in the specification as originally filed. A phone call to Daniel N. Calder on June 23, 2003 did not immediately result in any material clarification. It will be

Art Unit: 1746

PROVISIONALLY assumed that the requisite support exists only for the purposes of compact prosecution. The requisite support is still required.

10. As to claims 10 and claims 11-12, since both the instant application and the Carlson reference teach boehmite, the most effective arguments will, of necessity, relate to the method of manufacturing as this is the manner in which the different property may be shown. Assuming that the requisite support exists, the Carlson reference teaches:

[T]here is a subsequent step of contacting the surface of the pseudo-boehmite layer with heat- or radiation curable monomers or oligomers to thereby cause the infusion of the monomers or oligomers into the pores of the pseudo-boehmite layer and then curing the monomers or oligomers with heat, ultraviolet light, visible light, infrared radiation, or electron beam radiation to form an ionic conductive polymer.

As such the formed oxide layer is made non-porous.

11. In a larger sense, it is not clear exactly what is intended by “non-porous”, nor is it clear exactly what the “boehmite treatment” constitutes. It is assumed that the electrode is materially aluminum, and that the treatment is an oxidation step, wherein the aluminum electrode is oxidized, or alternatively, that the electrode is a conductor and a boehmite layer is added. Admittedly the *oxide layer* is initially porous but the pores have been filled. Thus the material is non-porous. That the material was once porous is seemingly irrelevant inasmuch as the claims do not discuss the history of the “non-porous” oxide layer.

Specification

12. The abstract of the disclosure is objected to because the heading reflects a typographical error. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112--New

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 11 and 12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Support for the recitation of "non-porous" could not be found in the application as originally filed.

Claim Rejections - 35 USC § 102--New

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 4,759,805 to Saruwatari et al. discloses a electrode (aluminum conductor) having formed thereon an oxide layer (boehmite film), the oxide layer being formed by applying a boehmite treatment to the electrode plate surface and a layer of an electrode active material is on the oxide layer (wetting agent), wherein the oxide layer is non-porous (non-porous boehmite

Art Unit: 1746

layer). The recitation of a battery, appearing only in the preamble is not deemed to further limit the claim. This position is further supported under the doctrine of claim differentiation, wherein it is assumed that two claims in the same patent will not have the identical scope, but instead, that there is likely an intended difference in scope between the two. Claim 2 actively recites a battery, therefore it is presumed that the battery is not required in claim 1.

Claim Rejections - 35 USC § 102—Maintained

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 4,105,511 to Nikaido et al.

2. As to claim 1, disclosing an electrode plate comprising a surface having formed thereon an oxide layer, the oxide layer being formed by applying a boehmite treatment to the electrode plate surface. The same is disclosed by Nikaido. More specifically, Nikaido discloses subjecting an aluminum or aluminum alloy to a boehmite treatment, followed by electrolysis using the resulting aluminum or aluminum alloy as the electrode...thereby forming a new layer. See e.g. column 1, line 64 *et seq.*

3. As to claim 3, Nikaido discloses that the boehmite treating method produces a layer having a thickness of up to about 1.0 micron. See e.g. column 1, lines 35-43.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-5 and 9-10 are rejected under 35 U.S.C. 102(e) as being anticipated by United States Patent No. 6,153,337 to Carlson et al.
6. With specific respect to claim 1, the reference reads on the claims. Claim 1 discloses an electrode plate comprising a surface having formed thereon an oxide layer, the oxide layer being formed by applying a boehmite treatment to the electrode plate surface. Carlson discloses coating a cathode (i.e. electrode) with a boehmite coating (boehmite sol). Boehmite is an oxide of aluminum. See e.g. column 3, lines 22-34 and column 4, lines 28-32 and claims 54 and 62.
7. As to claim 2 disclosing that the electrode plate is included in the battery, the cathode is disclosed to be used in an “electric current producing cell”. See e.g. column 25, lines 29-39.
8. As to claim 3, disclosing that the oxide layer has a thickness of 0.5 microns-5 microns. The boehmite layer is disclosed to have a range of 1-25 and 5-15 microns, thus covering most of the claimed range. See e.g. column 4, lines 3-9.

Art Unit: 1746

9. As to claim 4, further limiting claim 2, disclosing that the oxide layer has a thickness of 0.5 microns-5 microns. The cathode discussed above with respect to claim 2 is coated as indicated as set forth in claim 3. Further, claim 102 at column 28, lines 41-43 disclose that the electric current producing cell boehmite layer is 5-15 microns.
10. As to claim 5, disclosing that the electrode plate is selected from the group consisting of a negative electrode plate and a positive electrode plate. Cathode was disclosed in the discussion at claim 1. See e.g. column 3, lines 22-34 and column 4, lines 28-32 and claims 54 and 62.
11. As to claim 9, further limiting claim 1, and disclosing that the paste is dried, the same is disclosed at e.g. column 4, line 17 *et seq.*
12. As to claim 10, disclosing a method for producing an electrode plate for a Li secondary battery the method comprising the steps of providing an electrode plate (cathode) forming an oxide layer on the electrode plate by applying a boehmite treatment to the electrode plate (coating with boehmite) applying a paste (sol) comprising an electrode active material (organic electrolyte) to the oxide layer and drying the paste (drying the coating). See e.g. column 25, lines 29-39 and 64-67.

Conclusion

It appears at this time that the pending rejection is properly maintained. If applicant believes that there has been any oversight, or some matter was not fully considered, applicant is cordially invited to contact this examiner at the below number.

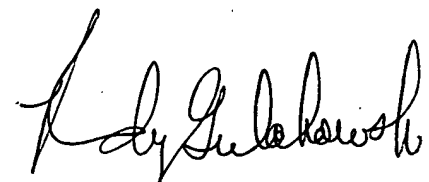
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gentle E. Winter whose telephone number is (703) 305-3403. The examiner can normally be reached on Monday-Friday 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on (703) 308-4333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Gentle E. Winter
Examiner
Art Unit 1746

July 8, 2003

A handwritten signature in black ink, appearing to read "Randy Gulakowski", is written over a rectangular area.

RANDY GULAKOWSKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700